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QGP Phase Boundary and Plasma Lifetime From Thermal Properties of ϕ Mesons

Content :

An attempt has been made to probe the QCD phase boundary by analyzing the experimental data for transverse momentum distribution of ϕ mesons produced in nuclear collisions at AGS, SPS and RHIC energies. The data are confronted with simple thermodynamic expectations and lattice results. The experimental data indicate a first order phase transition, with a mixed phase stretching energy density between $\sim$ 1 and 3.2 GeV/fm^3. The data have also been used to estimate the lifetime of the partonic phase produced in such collisions. We find that the QGP lifetime at RHIC is between 2.8 and 3.9 fm/c, whereas lifetime for LHC energy is estimated to be between 4 and 6 fm/c. The details of the method and results obtained will be presented in the conference\cite{1}.

1. R. Sahoo, T.K. Nayak, J. Alam, B.K. Nandi and S. Kabana, \prc (Under Review), arXiv: 1007.4335 [nucl-ex] and references therein.

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